

CLAIMS

1. Electromagnetic regulating device comprising a movable actuator (42) with an engagement region (44) on an end thereof and a coil device (34, 36), which is stationary relative to the actuator and which is adapted to exert a force on the actuator, a permanent magnet, which holds the actuator (42) in proximity to the coil device (34, 36) in an inactive state of the coil device (34, 36) and, upon application of a current to the coil device (34, 36), the actuator (42) is released from the coil device (34, 36), overcoming a retaining force of the permanent magnet.

2. The regulating device according to Claim 1, wherein the actuator (42) has a permanent magnet (38) at least in sections, which interacts with a stationary core region (32) of the coil device (34, 36).

3. The regulating device according to Claim 1, wherein the actuator (42) interacts with a mechanical force storage device (40), which exerts a spring force counteracting the retaining force on the actuator (42).

4. The regulating device according to claim 2, further comprising a cylindrical housing (30) which encloses at least the coil device (34, 36) and a core region.

5. The regulating device according to claim 1, wherein the permanent magnet comprises at least one permanent magnetic disk (38) provided on an end region of the actuator (42) opposite the engagement region (44).

6. The regulating device according to Claim 5, characterized in that the permanent magnetic disk includes a disk surface, which extends generally parallel to a surface of the core region (32).

7. The regulating device according to Claim 5, wherein the actuator has a disk element (48) made from magnetically conductive material adjacent to the disk-shaped permanent magnet (38) in a direction towards the core region (32).

8. The regulating device according to Claim 7, wherein a second disk element (50) made from magnetically conductive material is adjacent on an other end to the permanent magnet.

9. The regulating device according to Claim 7, wherein at least one disk element is connected to the permanent magnet by an adhesive film.

10. The regulating device according to Claim 7, wherein the permanent magnet and at least one disk element are enclosed at an edge thereof by a sleeve or capsule element (52) made from non-magnetic material.

11. The regulating device of claim 10, wherein the non-magnetic material is a plastic ring.

12. The regulating device according to claim 1, wherein the actuator (42) comprises an elongated piston that is guided in a tubular guidance section (46) of a housing of the regulating device

13. The regulating device of claim 12, wherein the housing is made from non-magnetic material.

14. A regulating device for an internal-combustion engine for cam shaft regulation, the regulating device comprising a movable actuator (42) with an engagement region (44) on an end thereof and a coil device (34, 36), which is stationary relative to the actuator and which is adapted to exert a force on the actuator, a

permanent magnet, which holds the actuator (42) in proximity to the coil device (34, 36) in an inactive state of the coil device (34, 36) and, upon application of a current to the coil device (34, 36), the actuator (42) is released from the coil device (34, 36), overcoming a retaining force of the permanent magnet means, wherein the engagement region (44) interacts with a corresponding regulating element of a cam shaft or motor element.

15. The regulating device according to Claim 14, wherein the regulating element is adapted to generate a restoring force in a direction of the retaining force of the permanent magnet and thus for creating a stroke movement of the actuator (42) by a predetermined stroke length, wherein the stroke length is set such that an actuator moved in this manner is adapted to be moved by the permanent magnet means (38) in a direction towards the core region (32).